

WHAT IS CLAIMED IS:

1. A method for selective deposition of molecules, comprising:
providing a reactive layer comprising a surface region coated with a resist that is biologically compatible with the reactive layer;
5 selectively removing a portion of the biologically compatible resist from the surface region to expose an exposed portion of the reactive layer;
and
conjugating molecules with the exposed portion of the reactive layer.
- 10 2. A method according to claim 1, wherein the reactive layer comprises a polysaccharide mass.
3. A method according to claim 2, wherein the polysaccharide mass comprises chitosan.
4. A method according to claim 2 or 3, further comprising
15 depositing a selectively insolubilizable polysaccharide on a substrate to form the polysaccharide mass.
5. A method according to claim 4, wherein said depositing comprises providing an aqueous solution comprising the selectively insolubilizable polysaccharide and having a pH, contacting the aqueous
20 solution with the substrate, and altering the pH of the aqueous solution to insolubilize and deposit the selectively insolubilized polysaccharide on the substrate as a film of the polysaccharide mass.

6. A method according to claim 4, wherein said depositing comprises providing an aqueous solution comprising the selectively insolubilizable polysaccharide and having a pH, electrochemically depositing the selectively insolubilizable polysaccharide on an electrically
5 conductive support of the substrate, and altering the pH of the aqueous solution to stabilize the selectively insolubilized polysaccharide on the electrically conductive support.

7. A method according to any one of claims 1 to 6, wherein the biologically compatible resist comprises a gelatin thermoresist.

10 8. A method according to any one of claims 1 to 7, wherein said selective removing comprises biolithography.

9. A method according to any one of claims 1 to 8, wherein the biologically compatible resist comprises a thermoresist, and wherein said selective removing comprises melting a portion of the thermoresist and
15 removing the melted portion of the thermoresist from the reactive layer.

10. A method according to claim 9, where said melting is performed with a heated stamp applied to an exposed face of the thermoresist.

11. A method according to claim 9, wherein said melting is
20 performed with heating means incorporated in the solid support beneath the thermoresist.

12. A method according to any one of claims 1 to 8, wherein said selective removing comprises enzymatically removing a portion of the biologically compatible resist.

13. A method according to any one of claims 1 to 12, further comprising modifying the reactive layer to improve conjugatability with reactive groups of the molecules.

14. A method according to any one of claims 1 to 12, further comprising modifying the molecules to improve conjugatability with reactive groups of the reactive layer.

15. A method according to any one of claims 1 to 14, wherein the molecules comprise biomolecules.

16. A method according to claim 15, wherein the molecules comprise one, two, three or more protein species.

17. A method according to claim 15, wherein the molecules comprise one, two, three or more enzyme species.

18. A method according to claim 15, wherein the molecules comprise one, two, three or more antibody species.

19. A method according to claim 15, wherein the molecules comprise one, two, three or more receptor molecule species.

20. A method according to claim 15, wherein the molecules comprise one, two, three or more nucleic acid molecule species.

21. A method according to any one of claims 1 to 20, wherein the exposed portion and the molecules comprise a first exposed portion and a

first molecular species, respectively, and wherein the method further comprises:

- (d) coating the biologically compatible resist on the first molecular species conjugated to the first exposed portion of the reactive layer;
- (e) selectively removing a second portion of the biologically compatible resist to expose a second exposed portion of the reactive layer; and
- (f) conjugating a second molecular species with the second exposed portion of the reactive layer.

22. A method according to claim 21, wherein the first and second molecular species are conjugated with the reactive layer sequentially.

23. A material comprising a reactive layer having a surface, the surface comprising a first surface region conjugated to a first molecular species and a second surface region coated with a biologically compatible resist.

24. A material according to claim 23, wherein the reactive layer comprises a polysaccharide mass.

25. A material according to claim 23 or 24, wherein the surface comprises a third surface region conjugated to a second molecular species differing from the first molecular species.

26. A device comprising a material of any one of claims 23 to 25.

27. A device according to claim 25, wherein the device comprises a microelectromechanical system.